UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,432	12/15/2003	Alpaslan Demir	I-2-0537.1US	3424

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VOLPE AND KOENIG, P.C.
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EXAMINER
NGUYEN, DUC M

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
03/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<table>
<tr><td rowspan="4">Office Action Summary</td><td>Application No.
10/736,432</td><td>Applicant(s)
DEMIR ET AL.</td><td></td></tr>
<tr><td>Examiner
DUC M. NGUYEN</td><td>Art Unit
2618</td><td></td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>15 February 2008</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>10-14,16-23 and 25-27</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>10-14,16-23 and 25-27</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>2/15/08</u>.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____ .

DETAILED ACTION

This action is in response to applicant's response filed on 2/15/08. Claims 10-14,

16-23, 25-27 are now pending in the present application.

Claim Rejections - 35 USC ϶ 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented
> and the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims **10-14,** *16-23, 25-27* are rejected under 35 U.S.C. 103(a) as being

unpatentable by **Kurihara** in view of **Hiramatsu et al** (US **5,933,112**) and **Hayashi** (US

6,308,057).

Regarding claim **10, Kurihara** discloses a communication system (see Fig. 3),

comprising:

- an automatic gain control (AGC) circuit which receives and adjusts the gain of a

communication signal, the AGC being controlled by a gain control signal (see Fig. 3,

refs. 15, 11); and

- an insertion phase variation compensation module (see ref. 14 in Fig. 3, phase

correction unit) which continuously counteracts the effects of phase offsets introduced

into the communication signal by the AGC circuit, based on the gain control signal (see

c col. 3, lines 23-30 and ol. 3, line 47 – col. 4, line 25).

- a look up table (see Fig. 1A regarding table 2a) in communication with the

modem (baseband processor 31 in Fig. 3) and the insertion phase variation

compensation module (ref. 14 in Fig. 3), wherein the LUT receives the gain control

signal from the modem and provides estimates of the phase offsets to the insertion

phase variation compensation module as a function of the gain control signal (see col.

3, lines 6-30 and col. 3, line 47 - col. 4, line 25).

Therefore, **Kurihara** would teach all the claimed limitations except for the

provided estimates include a Sin function and a Cos function of a phase offset, x.

However, in an analogous art, **Hiramatsu** teaches a phase offset correction wherein

estimation of compensation errors include a Sin function and a Cos function of a phase

offset (see Figs. 2, 13 and col. 8, line 46 – col. 9, line 50 noting for exponential function

$e^{j\theta} = \cos\theta + j\sin\theta$). Therefore, it would have been obvious to one skilled in the art of

phase offset correction modules to modify Kurihara to include a Sin function and a Cos

function of a phase offset to account for AFC processing errors, for further improving the

performance of the receiver.

As to the limitations regarding four multipliers and two adders circuit, one skilled

in the art would recognize that such circuit, as disclosed by **Hayashi** (see Fig. 2), is just

the implement of the vector multiply circuit 117 in **Hiramatsu's** reference.

Regarding claims **11-14, Kurihara** would teach an analog-to-digital converter

ADC, phase variation module and a processor as claimed (see Fig. 3 regarding refs. 13,

14, 31, 15), noting that the combination of the baseband processor 31 and gain
controller 15 would function in the similar way as of the claimed "modem".

Regarding claims **16-18, 25-27, 29-31**, the claims are rejected for the same
reason as set forth in claim 10 above regarding a Sin function and a Cos function of a
phase offset, x.

Regarding claims **19-23**, the claims are rejected for the same reason as set forth
in claims 11-14 above. In addition, since the use of an IC circuit for a CDMA
communication device as disclosed by **Kurihara** is well known in the art, it would have
been obvious to one skilled in the art to modify Kurihara to provide the IC circuit as
claimed, for utilizing advantages of IC circuits such as cost, light weight.

3.   Claims **10-14, *16-23, 25-27*** are rejected under 35 U.S.C. 103(a) as being
unpatentable by **Kurihara** in view of **Nara et al** (US 6,340,833) and **Ichihara** (US
6,587,513).

Regarding claim **10, Kurihara** discloses a communication system (see Fig. 3),
comprising:

- an automatic gain control (AGC) circuit which receives and adjusts the gain of a
communication signal, the AGC being controlled by a gain control signal (see Fig. 3,
refs. 15, 11); and

- an insertion phase variation compensation module (see ref. 14 in Fig. 3, phase
correction unit) which continuously counteracts the effects of phase offsets introduced

into the communication signal by the AGC circuit, based on the gain control signal (see

c col. 3, lines 23-30 and ol. 3, line 47 – col. 4, line 25).

   - a look up table (see Fig. 1A regarding table 2a) in communication with the

modem (baseband processor 31 in Fig. 3) and the insertion phase variation

compensation module (ref. 14 in Fig. 3), wherein the LUT receives the gain control

signal from the modem and provides estimates of the phase offsets to the insertion

phase variation compensation module as a function of the gain control signal (see col.

3, lines 6-30 and col. 3, line 47 - col. 4, line 25).

   Therefore, **Kurihara** would teach all the claimed limitations except for the

provided estimates include a Sin function and a Cos function of a phase offset, x.

However, it is noted that the estimation of compensation errors that include a Sin

function and a Cos function of a phase offset is well known in the art as disclosed by

Nara (see col. 6, lines 16-28). Therefore, it would have been obvious to one skilled in

the art of phase offset correction modules to modify Kurihara to include a Sin function

and a Cos function of a phase offset as claimed, in order to provide the estimation more

accurately. By doing so, it is clear that **Kurihara** as modified would teach four multipliers

and two adders circuit as disclosed by **Ichihara** (see Figs. 1, 8), in order to implement

the complex multiplications as shown in col. 6, lines 20-30 of **Nara's** reference.

   Regarding claims **11-14, Kurihara** would teach an analog-to-digital converter

ADC, phase variation module and a processor as claimed (see Fig. 3 regarding refs. 13,

14, 31, 15), noting that the combination of the baseband processor 31 and gain

controller 15 would function in the similar way as of the claimed "modem".

Regarding claims **16-18, 25-27, 29-31**, the claims are rejected for the same reason as set forth in claim 10 above regarding a Sin function and a Cos function of a phase offset, x.

Regarding claims **19-23**, the claims are rejected for the same reason as set forth in claims 11-14 above. In addition, since the use of an IC circuit for a CDMA communication device as disclosed by **Kurihara** is well known in the art, it would have been obvious to one skilled in the art to modify Kurihara to provide the IC circuit as claimed, for utilizing advantages of IC circuits such as cost, light weight.

Response to Arguments

4.   Applicant's arguments with respect to claims 10, 19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5.   **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Nay Muang (Supervisor) whose telephone number is (571) 272-7882.

/Duc M. Nguyen/

Primary Examiner, Art Unit 2618

Mar 12, 2008